DOCUMENT RESUME

ED 208 246 CE 030 397

AUTHOR	Evans, Rupert E.
TITLE	Vocational Education and Reindustrialization.
INSTITUTION	Ohio State Univ., Columbus. National Center for Research in Vocational Education.
REPORT NO	NCRVE-OP-OC-75
PUB DATE	Sep 81
NOTE	20p.; Paper presented at the National Center for Research in Vocational Education Staff Development Seminar (Columbus, OH, September 1981).
AVAILABLE FROM	National Center Publications, The Ohio State University, 1960 Kenny Rd., Columbus, OH 43210 ($1.90).
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Adult Vocational Education; Disabilities; Economic Development; *Educational Needs; *Education Work Relationship; Employment Programs; Entry Workers; Federal Programs; Labor Force Development; Outcomes of Education; Policy Formation; Postsecondary Education; Program Effectiveness; *Program Improvement; *Public Policy; Reentry Workers; *Research Needs; Retraining; Secondary Education; Training Objectives; Unemployment; *Vocational Education; Youth Employment
IDENTIFIERS	Comprehensive Employment and Training Act; *Reindustrialization

ABSTRACT

If it is to play a key role in the reindustrialization of the United States, vocational education must be improved. Although vocational education has grown substantially in size in recent years, its quality is spotty, characterized by excellent programs in some communities and poor programs in others. In order to contribute to reindustrialization, vocational education must serve better its three major groups for the work of the future: training young people for work, retraining present employees, and retraining those who are reentering the labor force. Only the first of these components has received serious efforts. There are four keys to quality in vocational education: content, trainees, facilities, and staff. The quality of vocational education is affected most by what is done on the local level. Local programs should pay more attention to updating skills, keeping their teachers up to date, replacing obsolete training equipment, and servicing various populations, such as the handicapped, older workers, and rural residents. At the same time, the improvement of vocational education could be facilitated on the federal level by increased emphasis on vocational education research and development, especially focusing on improvement in teaching methods and programs, rather than maintenance of the status quo. Only if these changes are made will vocational education contribute to the reindustrialization of America without lost time, money, and human resources. (KC)

ED208246

Occasional Paper No. 75

VOCATIONAL EDUCATION AND REINDUSTRIALIZATION

by

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September 1981

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FOREWORD

As part of the conference on productivity and economic revitalization held by the National Academy for Vocational Education, Dr. Rupert N. Evans contributed this work to our Occasional Paper Series. Dr. Evans is a renowned vocational educator who has spent much time in studying the growth of vocational education and its response to major needs of the United States. Because of this, he is in a unique position to speak on reindustrialization and vocational education's response to this current economic need.

Dr. Evans is Professor of vocational and technical education at the University of Illinois. He was a high school vocational teacher, a foreman for General Motors, and Dean of the College of Education, University of Illinois. Dr. Evans received his Ph.D. at Purdue University in 1950 and has been one of the country's leaders of vocational education. He is a member of various professional organizations, a former school board member, and member of the Training Committee of the U.S. Chamber of Commerce.

It is indeed a pleasure on behalf of the National Center for Research in Vocational Education, The Ohio State University to share the Occasional Paper by Dr. Rupert N. Evans entitled "Vocational Education and Reindustrialization."

Dr. Robert E. Taylor
Executive Director
The National Center for
Research in Vocational Education

VOCATIONAL EDUCATION AND REINDUSTRIALIZATION

What Is Vocational Education?

Ever since the beginning of World War I, Congress has spent tax dollars to encourage the states to provide education that helps youth and adults qualify for new or better jobs. The states pass this subsidy on to secondary and postsecondary schools that offer approved training programs. The emphasis is on the development of the skills, knowledge, and attitudes that are needed in productive work normally requiring less than a baccalaureate degree for entry. The only professionals who can be trained using these specific tax dollars are vocational educators. However, many vocational graduates eventually go to four-year colleges and become professionals.

Schools are not required to participate in vocational education, but almost all high schools and community colleges, in every state and territory, have elected to provide vocational programs. In fact, local and state governments have chosen to spend more than ten dollars of their own tax funds on vocational education for every federal dollar that they receive. Obviously, local school officials feel that vocational education is good for their community.

Similarly, the trainees decide whether or not they want vocational education. If they are full-time workers or have left school and are unemployed, they can choose to spend their free hours in many ways other than in vocational classes. In addition to giving up their free time, vocational students must pay tuition fees; and, unlike the trainees in other government training programs, they receive no stipend. If they are full-time students, they have a choice of three curricula: vocational, college preparatory, or general. The latter "does not necessarily prepare you either for college or for work, but consists of courses required for graduation plus subjects that you like" (Flanagan et al. 1964, p. 5). The general curricula is generally considered to be the least demanding of the three and is the curriculum choice of the majority of students who later drop out of school (Combs and Colley 1967). Obviously, both the full-time and part-time trainees who have chosen to participate in vocational education feel that it is good for them.

Similarly, adults support vocational education. When asked in a Gallup poll about the high school subjects they had taken and "found to be most useful in later life," adults listed commercial subjects and shop in the top five (along with English, mathematics, and extracurricular activities). Those who did not participate wished that they had. Typing and other secretarial skills, mathematics, and shop were listed as the three subjects that would be of "special help . . . now" (Gallup 1978).

NOTE: "Revitalization" seems to be the current word that is replacing "reindustrialization." The latter term, coined by Dr. Amitai Etzioni, bothers some people who believe that we have a postindustrial society and others who recognize that business, as well as industry, needs reinvigoration. Few disagree with the concept, however, once they understand what is meant.

This paper has been improved by the comments of many people, but especially by Dr. Sar Levitan. The author, however, is responsible for its contents.

Vocational education grew slowly but steadily throughout its first fifty years in the United States (though it had a brief, major expansion during World War II when school shops ran twenty-four hours a day, training workers for war production). In the sixties, it began to expand rapidly to accommodate the postwar baby boom, and in the seventies it expanded again because a higher proportion of youth and adults chose it instead of other educational activities.

Today, the principle roles of vocational education are:

1. Preparing individuals for work, for entry jobs, upgrading, retraining, and cross training.
2. Providing orientation to work.
3. Ensuring equity for individuals and population groups in preparation for work. (*Position Statement* 1980, p. 3)

More than half a million instructors provide vocational education to 12 million youths and 5 million adults each year. About a third of these students receive "occupational" training and two-thirds get work orientation, consumer and homemaking instruction, and other "nonoccupational" instruction (NIE 1980, p. vi-4). More than 5,000 high schools and more than 2,000 community colleges and technical institutes each provide a choice of programs in five or more different occupational fields (NIE 1980, p. vi-15). Some schools serve a few square miles of a city, but area schools may have dormitories to accommodate students who live hundreds of miles away, or may put shops and laboratories on wheels to take training to all parts of their districts.

More than 150 different occupations are taught, ranging from bookkeeping to welding and from agricultural sales to x-ray technician training. Classes are scheduled so that they are accessible to full-time and part-time students. Shops and laboratories simulate conditions on the job as much as possible, and the theory of the occupation is related to its practice. Special efforts are made to ensure access to the training wanted and needed by each student.

Placement in jobs or in advanced vocational training programs is the foremost goal. When economic conditions permit, placement may occur before and during training; for example, cooperative education students work part time, and their schooling is related to what they learn on the job. Because vocational education is never required and because it emphasizes placement, it must take care to replace courses for which there is little demand and must seek out training needs that are not being met elsewhere. To aid in this process, advisory committees are used extensively.

How Effective Is Vocational Education?

We know more about the effectiveness of vocational education than about any other type of education because it has been evaluated repeatedly. Dozens of studies agree that its trainees earn more per year, have less unemployment, and are better satisfied with their work than similar workers who have not had this training. But these differences are minimal.

One reason for this disappointing fact is that the studies are based on averages. The range of quality in vocational education is enormous, so a tally of the average program results does not describe what this type of education is or can do. Nearly all the graduates of some programs earn more than their instructors. In others, the dropout rate is high, and the few graduates are hired only as a last resort. When evaluators look only at averages, these extremes are overlooked. If the poorer programs could be improved or eliminated, naturally the average quality and results would go up also.

Why do we have this range of quality? Each community plans its own programs. Some have better planners; some have better cooperation between business, industry, and the schools. Some spend more money on vocational education; some have far more unfilled jobs; and some have more opportunities for cooperative education than others. Conversely, some communities have a higher proportion of minorities and more persons with limited English-speaking ability. Some communities do a great deal for handicapped trainees, while others do almost nothing.

In addition to these variations from one community to another, there are variations by vocational field and by state. Some vocational subjects do not have enough qualified instructors, so less qualified people teach, or the program is closed. Some states insist on closing low quality programs, while others feel that almost any program is better than none. Some states design vocational education programs to attract employers from other parts of the nation and the world, while others do not.

What Are Vocational Education's Roles in Reindustrialization?

Vocational education can aid reindustrialization by assisting in the training of three major groups for the work of the future: training young people for work, retraining present employees, and retraining those who are reentering the labor force. Only the first of these has received significant attention since the heyday of the GI Bill.

Training Young People for Work

We will soon face a shortage of young workers. From 1936 to 1961 (with the exception of the World War II years) the number of children born in the United States increased every year. The annual births peaked in 1961 when 4.3 million children were born. This baby boom caused the number of young people of working age to increase steadily from about 1950 to the present. This certainly has been a major factor in problems such as rising youth unemployment, which in turn has had an effect on increased crime rates by youth.

For the decade and a half after 1960, the number of births decreased sharply, reaching a low of 3.1 million per year (*Statistical Abstracts of the U.S.* 1980, p. 61). This is 600,000 more births than we had during the depth of the Great Depression, but as a percentage of the total population, it is far lower. As a proportion of the labor force, it is lower still. One effect of this decrease in births is that the number of twenty-year-olds (those born in 1961) began to go down in 1981. And the number of young workers will decrease for the next fifteen years.

I believe that this will result in a severe shortage of young workers by 1990. A similar situation in Japan led them to describe young people who are willing to go to work as "Golden Eggs."

To further complicate the picture, the birthrate has declined much faster for whites and for middle-class families than for the population as a whole. This is almost certain to make it easier for white youth to get jobs. And, because the gap between opportunities for white and minority youth is likely to increase, we can expect envy and added frustration among the latter, particularly if they have had no training.

There are four major possibilities that may invalidate my prediction of a shortage of young workers. One is that the economy could collapse. Another is that we could have a continuing, large flow of immigrants who will be eager to take the jobs normally held by young workers. Certainly

we have had a major, recent influx of immigrants, both legal and illegal. Although it seems likely that there will be pressure to allow immigration to increase, the keys to the actual amount of immigration are likely to be (a) how many acceptable jobs will be available in less developed countries (what, for example, will happen to the oil-fueled economy of Mexico?), and (b) how will unskilled, alien workers adapt to the continuing trend toward higher technology in this country's work?

A third reason that fewer young workers may be needed could be that they will be replaced by robots and other computer-controlled devices that will work more efficiently. I would fear the effects of this revolution more if I had not lived through repeated predictions of similar effects that never materialized. One of my favorite stories is of Tom Watson, the former president of International Business Machines. He was so remorseful about the mass unemployment that he felt would result from the introduction of his company's new computers in 1960 that he gave Harvard $10 million to find ways of relieving the misery. Harvard had some difficulty in studying a problem that did not exist. But the federal government had less difficulty in diverting the Manpower Development and Training Act (MDTA) of 1962 from its original goal of retraining the predicted thousands of technologically unemployed who did not exist. MDTA became a program for aiding the poor, a group that certainly did exist.

The fourth possibility is that the number of women in the labor force will continue to increase dramatically. At first glance, this would appear likely. Certainly the proportion of adult females who are in or are looking for paid work increased from about 32 percent in 1947 to 52.2 percent in 1981 (Bureau of Labor Statistics 1981, Table A-1). Even though we created about 1 million new jobs per year during the last two decades, these were not quite enough jobs to employ every young worker plus the many women who chose or were forced by economic necessity to seek paid work. It is an oddity that the percentage of adult males seeking employment decreased every year from 1948 to 1981 (from 87 percent to 77 percent), while at the same time, the rate for females increased so dramatically.*

Continued inflation may, of course, force even more women into employment (along with retirees of both sexes). In some countries, 60 percent of the women work.* I do not agree, however, with those extrapolators who think that before long there will be a higher proportion of females than males in the labor force. Indeed, I (and no one else, as far as I know) think that in the United States, as more employed women reach early retirement age and as more conservative groups gain power, the proportion of women seeking employment will actually go down. If you were to press me for figures, I would guess that the peak will occur at about 55 percent, before 1990. If so, this would add to our shortage of younger workers, rather than decrease the problem.

If the economy stays reasonably robust, I believe (for the reasons stated above) that we will not have major increases in immigration and that technology and older women will not take over most of the jobs typically held by new entrants into the labor force. If so, it seems clear that we will have a major shortage of young workers.

Employers have become accustomed to having a large number of young applicants for each good job that is available. The only jobs that have had shortages of applicants are those that require specific training or that have poor working conditions. When many people apply for jobs, the employer can choose the best, train them, and expect that they will be employed long enough to recoup the costs of employment and training. But when there is a shortage of young workers, even the good jobs have

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*Sar Levitan, personal communication, Washington, DC, 1981.

few seekers. This means a lower selection ratio and more turnovers. Consequently, employers are less willing to invest in training, and are likely to begin demanding that government aid them by providing training to current and prospective employees. At the same time, government will push employers to spend more on training.

Germany, which had a severe shortage of young workers during the fifties and sixties, turned first to the recruitment of aliens to meet their labor needs. This had a number of unanticipated bad effects, so they expanded the vocational training of German youth to a point far beyond what we have. (Now they have a different problem. The "guest workers" had so many children that Germany began to have serious youth unemployment. This led them to require employers to provide more training slots than there are youth, in order to take young people off the street.)

I predict that our shortage of young workers will have similar effects. We have been encouraging substantial immigration (though not as overtly as the Germans did). We have been expanding the quantity of vocational education. The next step will be to improve the quality of vocational education and to match it to the needs of the reindustrializing America. If that does not produce enough high quality training programs, government may go even further in dictating to employers what training they must provide and to whom. The emphasis will be on the training of youth, even though the social need to retrain adults may be even greater.

Retraining Present Employees

Investment in more efficient producers, processes, and equipment is a basic tenet of reindustrialization. This will necessitate job redesign and the retraining of already employed workers on a scale that has not been approached since World War II. Whole industries may be abandoned when the subsidies that support them are removed. Their workers will need to be retrained for jobs in growing, efficient industries. It seems certain that there will be continued increases in the demand for skilled workers who can install, adjust, and repair the increasingly complex equipment that is being used in all forms of work.

Who will do the training? Much of it will be done on the job. But we now know that on-the-job training (OJT) is not very efficient if the flow of trainees is large. When the ratio of trainees to workers gets too high, workers spend too much time instructing trainees, and both the quantity and quality of work suffer. OJT is much more effective for most of the troubleshooting, repair, and creative jobs if it follows or is accompanied by classroom or laboratory instruction in the theory and practice of the work. This is the type of training that vocational education can do best.

Reindustrialization poses a problem that is nearly equal to the challenge of conversion from peacetime to wartime industry. We met that challenge successfully during World War II, with vocational education playing a major role in the massive retraining of workers. We can do it again.

Retraining Those Reentering the Labor Force

The largest group of individuals who reenter the labor force are women who left paid work earlier in life to raise a family. Another significant group of reentrants are women (and many men) who have been forced out of employment by a geographical move to facilitate the career of spouses. Still others who were forced out by bad health later seek reentry.

It has always been true that the longer one is away from paid work, the more likely it is that one will need substantial retraining. But, reindustrialization is certain to increase the amount of retraining needed by reentrants, because it will cause their jobs to change more rapidly while they are away. Vocational education has made substantial progress in aiding homemakers who are returning to paid work, but much remains to be done, for them and for other reentrants.

A similar need for retraining occurs as a result of early retirement. Almost a fourth of adult males are not working and not looking for work, and an increasing proportion of them are in their forties and fifties. Some have been forced to retire early, but an increasing percentage has elected to leave work because of the structure of their retirement plan. These plans continually reduce the difference between retirement pay and working pay, so that many workers over age fifty-five can receive almost as much money in retirement as they do in full-time work.

Once these individuals retire, however, the situation may look less inviting. Inflation may cut the purchasing power of a pension in half every decade. Boredom may be overpowering. Many of these people wish they knew how to get back to work.

Many retirees need retraining to reenter work, and again, the longer they have been retired, the more retraining they need. Some can use their current skills but need to know how to become entrepreneurs. Others need to know how to adapt their skills to work in new settings, perhaps even in volunteer work. Others need to rebuild their self-concepts or require assertiveness training.

As reindustrialization progresses, it will be more difficult for retirees to return to work without retraining. It makes sense to build on their current skills whenever possible. Vocational education can assess these skills and build individualized retraining programs based on each trainee's needs.

The Revitalization of Vocational Education: What Needs To Be Changed?

Just as the economy needs revitalization, so does vocational education. Although it is basically sound, it has numerous deficiencies that must be remedied so it can be of maximum service to the nation and to its citizens. There are deficiencies in content, in the types of people served, in equipment and facilities, and in staff:

1. Content (What Is Taught)
   a. Inadequate variety of programs in rural areas
   b. Too much content taken from the most obsolete portion of business and industry instead of from the most up-to-date portion
   c. Too much content based on obsolete practices rather than on current and future work
   d. Too little emphasis on developing entrepreneurs

2. Individuals Served (Who Is Taught)
   a. Too little service to adults
   b. Too little emphasis on serving people with special needs (e.g., the handicapped, those with limited English, convicts, and the poor)
   c. Too few programs for the gifted and talented
   d. Restrictions on who can enroll (because classes are offered only during the day or during the early evening, only to full-time students, only to those who enroll in September, etc.)

3. Equipment and Facilities (What Is Used in Teaching)
   a. Considerable amounts of out-of-date equipment
   b. Some obsolete buildings, particularly in large cities
   c. Some buildings in the wrong places
   d. Some buildings used only from 8 a.m. to 4 p.m.

4. Staff (Who Does the Teaching)
   a. Many instructors whose training is technically obsolete
   b. Some instructors who don't know how to organize, present, or evaluate what they teach
   c. Too many administrators who don't understand vocational education
   d. Salaries that are too low to attract qualified instructors in some fields
   e. Many counselors who lack knowledge of the work world
   f. Inadequate programs for training staff and keeping them up to date

What Does Not Need To Be Changed?

Many of the critics of vocational education suggest changes that would *not* improve the system. Contrary to their recommendations, we should *not* do the following.

1. We should *not* remove all vocational education from the secondary school. More than two-thirds of the high school students take one or more vocational education courses. It is true that the more expensive postsecondary vocational programs increase the earnings of graduates more than the high school programs do. But, if there were no vocational education in the high school, adolescents would lose opportunities for career exploration; the dropout rate would jump, which would decrease the amount of general education; and we could not accommodate the increased demand for postsecondary vocational education.

2. We should *not* transfer all vocational education from schools to employers. Most small employers cannot offer substantial amounts of training, except through cooperative education. Large employers are effective trainers, but all employers tend to shut down their intake of trainees when they are not expanding. Everyone agrees that the most economical time to offer training is during economic recession. If employers won't do it, then who will? Moreover, employers provide little general education to accompany their skill training. Schools, on the other hand, usually insist that vocational education students spend half or more of their time in general education. Finally, employers rarely are interested in providing training for employees who have their own reasons for wanting to change occupations. Schools, on the other hand, should be attuned to the needs and wishes of their clientele.

3. We should *not* fund only those programs whose graduates can find immediate job vacancies. Otherwise, we would have to close all programs during a recession. A far better choice is to fund programs in which trainees are willing to invest their time. It is true that some students will invest in useless training, but students (and their parents) seem to have as good a track record as labor economists in predicting which training will pay off. And, students know far better than anyone else what is interesting to them. The customer is right, at least in the long run.

4. We should *not* judge programs as if they could or should enroll students on a quota basis, taking into account sex, race, and ethnicity. Obviously, there should never be artificial barriers to enrollment, but choice of occupation should not be legislated.

Relationships between Vocational Education and CETA

The relationships between the Comprehensive Employment and Training Act (CETA) programs and vocational education remain anonymous. During its first forty years, vocational education professed an almost sole concern for increasing individual productivity. Not until the Vocational Education Amendments of 1968 did it make widespread attempts to serve the disadvantaged and handicapped. Even today, most of the 25 percent of students who drop out of school before graduation do so before they have an opportunity to enroll in vocational education. Most of these dropouts are poor and disadvantaged individuals. But in spite of its failures to serve the dropouts, and in spite of its stated pre-1968 goals to serve only those "who could profit from training," secondary school vocational education has actually served those who were not interested in or were rejected by the college preparatory curriculum. Consequently, it has attracted students who tend to be below average in verbal ability and in socioeconomic status (SES).

Similarly, the Manpower Development and Training Act (MDTA) of 1962, the precursor of CETA, began with an interest in productivity. Its stated purpose was the retraining of workers who were unemployed because of technological change. However, by the mid-1960s, MDTA was devoted almost entirely to helping unemployed young adults, particularly urban, minority youth who tended to have verbal ability and SES levels similar to the lower half of those served by vocational education.

Vocational education began outside the educational establishment, under the guidance of a separate federal board, and became part of the U.S. Office of Education during the thirties. Even today, several states have separate state boards of education and vocational education. Nevertheless, vocational education has provided most of its training through the public secondary and postsecondary schools. CETA, on the other hand, generally has preferred to purchase training rather than provide it. And, it has tended to choose the training that is provided by employers, community-based organizations (CBOs), and proprietary schools, rather than by the public schools.

Until the mid-seventies, CETA and vocational education generally kept an arm's-length relationship. For example, CETA carefully avoided serving students of high school age, unless the high school principal specifically released the individual trainee. (Perhaps the U.S. Department of Labor remembered its colossal conflict with the educational establishment, which killed the National Youth Administration's parallel secondary vocational school structure just before World War II.) On the other hand, few public schools were interested in a close relationship with CETA, in part because they were struggling with the highest enrollments in their history.

In recent years, however, things have begun to change. Most public schools are worried about declining enrollments. Congress has encouraged joint planning and has earmarked 22 percent of Title IV funds for YEDPA programs to be conducted by local education agencies. To everyone's surprise, most prime sponsores have spent far more than the required minimum on joint activities. Clearly, the time has come for more collaboration between CETA and vocational education, not just at the local level, but at the state and national levels as well.

Impediments to CETA/Vocational Education Collaboration

At the federal level, vocational education is fractionated within the U.S. Department of Education. What is needed is an education and work group that can bring together vocational education, bilingual vocational education, career education, vocational education for special needs students, industrial arts, entrepreneurship education, experience-based education, and other related programs. Once this is done, perhaps dialogue with the U.S. Department of Labor can be more fruitful.

At the state level, the Balance-of-State CETA organization is generally weak. Consequently, CETA service to the rural poor is rarely satisfactory, and communication with the state vocational education establishment leaves much to be desired. Perhaps those states that have strong area and postsecondary vocational and technical programs serving all parts of the state should be allowed to turn to them for operation of the Balance-of-State CETA programs.

The greatest barriers to collaboration, however, are related to goals rather than to organization. The national thrust toward reindustrialization demands an emphasis upon increasing the productivity of all workers. The impending shortage of young workers makes this emphasis even more essential. Vocational educators, particularly in the postsecondary schools, know how to develop productivity in students. CETA needs to adopt teaching productivity as a goal.

Conversely, CETA has emphasized service to the most disadvantaged workers, while much of vocational education has adopted this goal only reluctantly. The increasing gap between opportunities for young white and young minority workers (based on differential numbers of births) demands that vocational education join CETA in wholeheartedly attacking this problem.

Both CETA and vocational education have just begun to learn how to develop the skills of handicapped workers. We now have the technology to move almost all handicapped people from institutions and sheltered workshops into competitive employment, but the new techniques need to be put to work. CETA and vocational education are the logical systems to do it.

A little noticed change in congressional procedures may be the catalyst to force greater dovetailing between CETA and vocational education. "Reconciliation" requires that the Senate Subcommittee on Education and Employment divide a fixed appropriation among all funded activities. Thus, a dollar allocated to CETA is subtracted effectively from vocational education, and vice versa. This could lead lobbyists for the two groups to attack each other, but it is likely to lead the committee to demand more coordination between the two programs.

What Should Be Done To Make The Needed Changes?

1. At present, about 25 percent of federal vocational education funds must be spent on improvement of vocational programs (staff training, equipment purchases, buildings, research, development, and curriculum improvement). Most of the remainder is spent on program maintenance (salaries, supplies, and so forth), which should be the responsibility of state and local agencies. Federal support for program maintenance should be shifted, over a four-year period, to program improvement. Block grants, if they must be used, should be restricted to vocational education program improvement (rather than program maintenance) activities.

2. Equipment is very expensive in many vocational fields. For example, it costs a minimum of $200,000 to equip a vocational machine shop. Consequently, many such programs use equipment that came from World War II surplus and is forty years old. Advanced training must usually be done on the job, but introductory training can be done effectively on equipment that is five years old. If industry could depreciate fully all equipment that is donated to and used by vocational programs, company management would be more likely to buy modern equipment to replace the donated items (thus aiding reindustrialization). Secondhand equipment is not a total answer, of course, but the availability of five-year-old tools would improve the quality of vocational equipment dramatically.

3. Much research and development money has been used to find better ways of collecting data to prove that previous vocational education programs have been worthwhile. For example, millions of

dollars have been spent on follow-up studies that give essentially the same results: programs conducted two or three years ago paid off, but did not pay off heavily. The time has come to concentrate R&D funds on improving present and future programs. We need to know when to use on-the-job training and when to use formal classroom and laboratory instruction. We need to develop specialized equipment for instruction. For example, many of the functions of a million dollar numerically controlled machine tool could be taught on a specially designed plotter at far lower cost. Many troubleshooting tasks and complex industrial processes could be simulated on microcomputers if existing programs were adapted for school use. The very modest federal vocational education R&D budget of $10 million should be quadrupled, and a substantial portion of these funds expended on the improvement of vocational instruction. Regional R&D centers should be established to aid state program improvement efforts, and to supplement the work of the National Center for Research in Vocational Education.

4. We must develop a system for updating skills of vocational staff members. The more rapidly business and industry change, the more rapidly the training of vocational instructors becomes obsolete technically. To remedy this, schools hire instructors from business and industry. Often, these instructors have no idea of how to teach the occupation's skills or how to evaluate how much students have learned. Moreover, many of them bring from the job certain biases that interfere with instruction of minority groups and women. Similar problems exist with vocational counselors, administrators, and teacher educators. The identification of vocational staff who need retooling, the provision of adequate ways to update their skills, and the development of incentives for staff improvement are major tasks deserving high priority (Evans 1980).

5. Traditionally, the content of vocational education programs has been based on local surveys. As the mobility of skilled workers has increased, this is no longer adequate. The welding industry is working with vocational educators to develop a curriculum that will train welders to work anywhere. Similar consortia should be encouraged in other businesses and industries.

6. Vocational education typically has served students who are below average in verbal ability and who come from working class homes. Some community colleges and technical institutes are developing technical education that challenges students who have high verbal and computational skills. More and more, these programs reenrolling the most capable high school graduates as well as unemployed college graduates who need training which is salable. The Vocational Education Act of 1963 prohibits the training of people for professional work. This restriction should be removed, as long as the training can be accomplished in less than three years of postsecondary training.

7. Rural residents rarely have access to vocational education in a broad variety of occupations. Their high schools typically offer only agriculture, business, and home economics. Community colleges with the largest number (and the widest variety) of programs tend to be situated in urban areas, and do not have dormitories for students. In many states, they discriminate against students who live outside their district. The goal of every state should be to have a system of postsecondary vocational and technical education that is available equally to each of its residents, rather than to give preference to some on the basis of where they live.

8. In most parts of the country, the declining adolescent population will close many high schools. Fear of losing their jobs causes high school staff to decrease the number of students that they will send to area vocational schools. In turn, this leads to low enrollments and high costs per student in area schools. In many states the area schools are about to collapse, but in others they seem to be thriving. Why? How can we use the area vocational school as the nucleus for a large, comprehensive high school to replace small schools with limited programs and declining enrollment? A major, national study of this problem is needed immediately, followed by remedial action.

9. Most evaluations of vocational education are based on the premise that full-time students are in one of three curricula: vocational, general, or college preparatory, with little overlap among curricula. Recent research shows clearly that this model is inadequate (Copa and Forsberg 1980). In fact, many students from the other curricula take one or more vocational courses. Part-time students may enroll in a 4-hour short course or in a 144-hour course lasting all year. Most data collection systems count each of these as one course. The costs of vocational education should be based on the number of hours spent in it, rather than on a count of courses, or even worse, a labeling of students as being either vocational or nonvocational. The amount learned should be judged in terms of competencies and job satisfaction, rather than courses or programs completed.

10. Linkages to local private industry councils (PICs) should be strengthened, rather than placing total reliance on coordination of government efforts. State advisory councils should draw at least half of their members from business, industry, and labor.

11. It has been charged that vocational education has been a major factor in keeping the annual pay of women below that of men, because thirteen out of seventeen "traditionally female occupations" are taught in vocational education (*Report* 1980, p. 5). A study of the effects of eliminating female enrollment in these thirteen occupations would be illuminating, but what is really needed is a study of the reasons why people choose to receive training in sex-stereotyped fields.

12. The U.S. Department of Education (or its successor) should organize an Education and Work Unit that would include vocational education, career education, bilingual vocational education, vocational education for the handicapped, entrepreneurship education, experience-based education, and other related groups now scattered throughout the Department. This unit should begin immediate discussions with related groups in the U.S. Department of Labor to identify ways in which their programs can complement each other at the federal, state, and local levels.

Summary: Quality Is Needed More Than Quantity

The recent increase in the size of vocational education has not been accompanied by a uniform increase in quality. In fact, some aspects of vocational education have stood still while business and industry have changed markedly, and while the characteristics of the trainees to be served have also changed. Substantially improved quality in some parts of vocational education is essential if it is to play a key role in reindustrialization. The goal, of course, should be uniformly high quality.

There are four keys to quality in vocational education: content, trainees, facilities, and staff; in other words, "what is taught," "to whom it is taught," "what is used to teach it," and "who teaches it." These four keys are dependent on each other, for if one is gravely deficient or is particularly strong, the others are hampered or enhanced. If all four are first rate, there is no problem in preventing dropouts, in placing the graduates in satisfying and meaningful work, and in aiding the reindustrialization of our nation.

The quality of vocational education is affected most by what is done at the local level. Local supervisors, instructors, and advisory committees affect quality markedly. Some states have proved that they, too, can act in ways that improve quality. The principal efforts of the federal government have been twofold: to assist the states in maintaining existing programs, and to ensure that funds have been spent in accordance with the letter of the law. The federal establishment has made small, but significant, contributions toward R&D and staff development; but for a variety of reasons, it has become less and less involved in improving quality.

This paper suggests ways in which the federal government can act and assist the states in the revitalization of vocational education. The principal change suggested is that Congress cease supporting the status quo and move toward encouraging improvement of vocational education programs. Without changes such as those suggested here, the reindustrialization of the nation will be more difficult, more expensive, and more time consuming.

16

REFERENCES

Bureau of Labor Statistics. *Employment Situation.* Washington, DC: U.S. Department of Labor, March 1981.

Combs, Janet, and Colley, W. W. "Dropouts: In High School and After School." *American Educational Research Journal* 3 (1967): 343-363.

Copa, George, and Forsberg, Gary D. *Measuring the Employment and Further Education Effects of Secondary Vocational Education in Minnesota.* Minneapolis, MN: R&D Center for Vocational Education, University of Minnesota, 1980.

Evans, Rupert N. *Reauthorization and Vocational Teacher Education.* Urbana, IL: University of Illinois, Bureau of Educational Research, 1980.

Evans, Rupert N. "Reauthorization and the Redefinition of Vocational Education." *VocEd—Journal of the American Vocational Association* (January/February 1981): 30-34. Vol. 56(1).

Flanagan, John; Davis, Frederick B.; Dailey, John T.; Shaycoft, Marion F.; Orr, David B.; Goldberg, Isadore; Neyman, Clinton A., Jr. *The American High School Student.* Pittsburgh, PA: Project TALENT Office, University of Pittsburgh, 1964.

Gallup, George. "The Public's Attitudes toward the Public Schools." *Phi Delta Kappan* 60, No. 1 (September 1978): 33-45.

National Institute of Education. *The Vocational Education Study: The Interim Report.* Vocational Education Study Publication No. 3. Washington, DC: U.S. Department of Education, National Institute of Education, 1980.

Position Statement of the National Association of State Directors of Vocational Education. Indianapolis, IN: The National Association of State Directors, 1980.

Report on Education Research. Washington, DC: Capitol Publication Newsletter, Vol. 12(24), November 26, 1980, 5.

Statistical Abstracts of the United States. Washington, DC: U.S. Government Printing Office, 1980.

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